

A review of the genus *Gibbotettix* Zheng (Orthoptera: Cladonotidae) with descriptions of two new species from China

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Abstract: This paper revises the taxonomy of the genus *Gibbotettix* Zheng from China. Nine species are reported, in which two are new to science: *Gibbotettix lativertex* sp. nov. and *Gibbotettix guizhouensis* sp. nov. A key to the known species of *Gibbotettix* Zheng is given. *G. lativertex* sp. nov. is allied to *G. hongheensis* Zheng, 1992 and *G. hupingshanensis* Fu et Zheng, 2003. *G. guizhouensis* sp. nov. is allied to *G. lativertex*. The type localities of the two new species are Sangzhi of Hunan and Daozhen of Guizhou, respectively. The type specimens are deposited in the Institute of Zoology, Shaanxi Normal University. The generic characters are revised based on the specific characters of new species.

Key words: Orthoptera; Cladonotidae; *Gibbotettix*; taxonomy; new species

The genus *Gibbotettix* was erected by Zheng Zhe-Min in 1992, the type species is *Gibbotettix emeiensis* Zheng, 1992, which is distributed in Emei Mountain, Sichuan, and at the same time *G. hongheensis* Zheng, 1992 was recorded. Zheng Zhe-Min (1992) reported *G. leishanensis* Zheng, 1992. Zheng Zhe-Min and Jiang Guo-Fang (1998) reported *G. guangxiensis* Zheng et Jiang, 1998. Zheng Zhe-Min and Fu Peng (2003) reported *G. circinihumerus* Zheng, 2003 and *G. hupingshanensis* Fu et Zheng, 2003, and at the same time *Austrochancockia cristata* Liang, 1995 was transferred into the genus of *Gibbotettix*. Thus the genus *Gibbotettix* included 7 species. In this paper two new species from Sangzhi of Hunan and Daozhen of Guizhou are described. So far the genus *Gibbotettix* includes 9 species, which are distributed in southwest and south China, including such provinces as Guangdong, Guangxi, Hunan, Guizhou and Yunnan.

Gibbotettix Zheng, 1992

Gibbotettix Zheng, 1992, *Entomotaxonomica*, 14(1): 1–2; Liang and Zheng, 1998, *Fauna Sinica, Insecta*, vol. 12, Orth. Tetrigoidea, 46–49; Zheng, 2005, *Fauna of Tetrigoidea from Western China*, 41–48; Deng, Zheng and Wei, 2007, *Fauna of Tetrigoidea from Yunnan and Guangxi*, 38–41.

Type species: *Gibbotettix emeiensis* Zheng, 1992.

Diagnosis: Size small, body surface coarsely, with many tubercles; vertex wide, its width 2 to 3.4 times the width of one eye; vertex and frontal ridge forming a right angle or obtuse-rounded or rounded; frontal ridge between antennae prominent forward. Antennae filiform, inserted under lower margin of eyes, length of a segment in middle about 7–10 times longer than its width. Eyes globose. Anterior margin of pronotum distinctly produced over the head in profile, disc of pronotum conspicuous elevated, gibbose, median carina high at the former part, lamellar, low at the latter part; humeral angle obtuse-angular or wide rounded; top of hind process truncated, concave in the middle; lateral lobes produced outwards, top of posterior angle truncated. Without tegmina and wing. Upper and lower margin of anterior and middle femora with 2 lamellar convex; posterior femora stout, first segment of posterior tarsi longer than second and third segments together.

Distribution: China (Guangxi, Guangdong, Sichuan, Guizhou, Hunan and Yunnan)

Gibbotettix Zheng is very similar to *Austrochancockia* Gunther, 1938, but it differs from the latter by: anterior margin of pronotum distinctly produced over the head in profile, if not, then the anterior half of pronotum prominent, gibbose, posterior half flat.

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Key to the species of *Gibbotettix* Zheng

1. Lateral ridge of vertex slightly prominent; anterior margin of pronotum obtuse-angular in the middle 2
 - Lateral ridge of vertex distinctly prominent, lobe-like; anterior margin of pronotum straight 6
2. Width of vertex 3 times the width of an eye 3
 - Width of vertex 2 to 2.6 times the width of an eye 4
3. Longitudinal furrow of frontal ridge wider, its width 2 times the width of basal segment of antenna; lateral ocelli inserted the lower one-third of anterior margin of eye; anterior upper margin of pronotum with one concave in profile; humeral angle wide rounded. Distributed in Guangxi *G. circinihumerus* Zheng, 2003
 - Longitudinal furrow of frontal ridge narrower, its width 1.5 times the width of basal segment of antenna; anterior upper margin of pronotum with two concavities in profile; humeral angle obtuse rounded. Distributed in Guangdong *G. cristata* (Liang, 1995)
4. Humeral angle obtuse angular; upper margin of pronotum near the anterior part distinctly curved 5
 - Humeral angle wide rounded; upper margin of pronotum oblique toward the anterior margin. Distributed in Guangxi *G. guangxiensis* Zheng et Jiang, 1998
5. Width of vertex 2.6 times the width of an eye; antennae inserted far below the lower margin of eyes; top of hind process with a shallow concave in the middle. Distributed in Sichuan *G. emeiensis* Zheng, 1992
 - Width of vertex 2.3 times the width of an eye; antennae inserted below the lower margin of eyes; top of hind process with a deeply concave in the middle. Distributed in Guizhou and Hunan *G. leishanensis* Zheng, 1992
6. Width of vertex 2 to 2.8 times the width of an eye; vertex and frontal ridge forming a right angle 7
 - Width of vertex 3.25 to 3.4 times the width of an eye; vertex and frontal ridge forming a obtuse-rounded or rounded 8
7. Antennae inserted slightly below lower margin of eyes; midkeel of pronotum completed the whole length distinctly; top of hind process with a shallow concave in the middle; third pulvillus of the first segment of posterior tarsi distinctly larger than the first and second pulvilli. Distributed in Yunnan *G. hongheensis* Zheng, 1992
 - Antennae inserted far below lower margin of eyes; midkeel of pronotum interrupted, top of hind process with a deeply concave in the middle; three pulvilli of the first segment of posterior tarsi equal in length. Distributed in Hunan *G. hupingshanensis* Fu et Zheng, 2003
8. Width of longitudinal furrow of frontal ridge 2 times the width of basal segment antenna; upper margin of pronotum deeply cuted by furrow before shoulders in profile; hind process reaching over the top of hind femur, top of hind process with a shallow concave in the middle; upper and lower keels of hind femur undulated; hind tibia black, with two light rings in the middle. Distributed in Hunan *G. lativertex* sp. nov.
 - Width of longitudinal furrow of frontal ridge 1.5 times the width of basal segment antenna; upper margin of pronotum not cuted by furrow before shoulders in profile; hind process reaching the top of hind femur, top of hind process with a deeply concave in the middle; upper and lower keels of hind femur smooth; hind tibia ochrous, basal and middle with black rings. Distributed in Guizhou *G. guizhouensis* sp. nov.

1 *Gibbotettix lativertex* sp. nov. (Fig. 1: A – C)

Diagnosis: This new species is allied to *G. hongheensis* Zheng, 1992 and *G. hupingshanensis* Fu et Zheng, 2003. It differs from both in: width of vertex 3 times the width of one eye; vertex and frontal ridge forming an obtuse-rounded in profile; hind process reaching over the top of hind femur; upper margin of pronotum cut by deeply furrow before shoulders. It differs from the former in: antennae inserted far below the lower margin of eyes; midkeel of pronotum interrupted. It differs from the latter in: top of hind process with a shallow concave in the middle; third pulvillus of the first segment of posterior tars; larger than the first and second pulvilli.

Descriptions: Female. Size small, body surface very coarsely, with many tubercles. Head short, width of vertex 3.4 times the width of one eye, median carina conspicuous, anterior margin straight, with concave in the middle slightly, not protruding between eyes, lateral margin slightly folded, beyond eyes; vertex and frontal ridge forming obtuse rounded in profile, frontal ridge angular protruding between

antennae, width of frontal ridge between antennae 2 times the width of first segment of antennae in front. Antennae filiform, inserted below hind margin of eyes. Eyes globose, prominent; lateral ocelli placed in hind margin of inner side eyes. Anterior margin of pronotum straight, upper margin of pronotum deeply cuted by furrow before shoulders in profile, undulated, curved distinctly near anterior margin; lateral keels of prozona parallel; humeral angle widely rounded; midkeel interrupted; each side with midkeel 4–5 large or small tubercles behind shoulders; hind process wide and short, slightly surpassing top of posterior femora, top of hind process with a shallow concave in the middle; lateral lobes of pronotum produced outwards, end of posterior angles truncate. Without tegmina and wing. Anterior and middle femur flatter, each upper and lower margin with 2 lamellar convex; posterior femora stout, upper midkeel undulated, interrupted at one third of the end and forming a large teeth, antegenicular denticles large, triangular, genicular denticles large, apex obtuse, lower midkeel undulated; outside of posterior tibia with 5 spines,

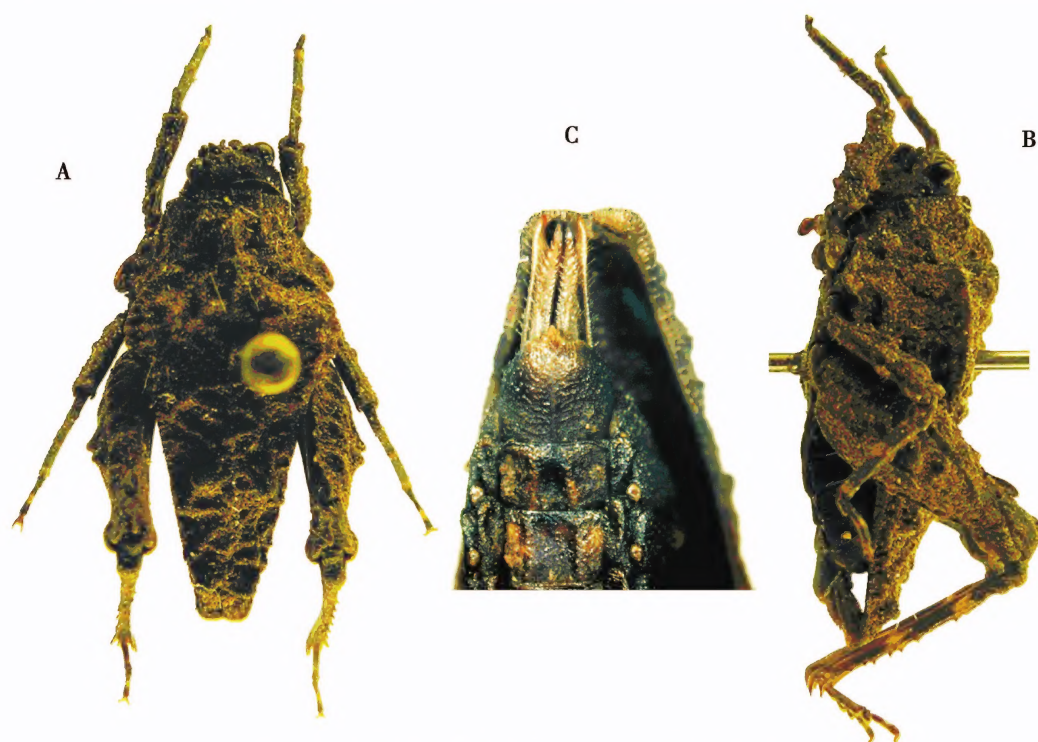


Fig. 1 Female adult of *Gibbotettix lativertex* sp. nov.

A: Body, dorsal view; B: Body, lateral view; C: Subgenital plate, ventral view.

inner side with 6 spines; the length of first segment of posterior tarsi as long as third segment, first and second pulvilli of first segment little, apex sharp, third pulvillus large, apex obtuse. Ovipositor narrow and long, outer margin of upper and lower valvulae with fine teeth. Length of subgenital plate nearly as long as wide, hind margin with three teeth.

Body dark brown; anterior and middle tibia black, with a light ring; inside and lower inside of posterior femora black; lower side of midkeel with a row of light spots; posterior tibia black, with two light rings in the middle.

Male. Unknown.

Measurements: Length of body: ♀ 12.0 – 12.2 mm, length of pronotum: ♀ 11.0 – 11.1 mm, length of hind femur: ♀ 6.5 – 7.0 mm.

Type materials: Holotype ♀, Hunan: Sangzhi, 110°01'E, 29°03'N, 10. IX. 2004, collected by WANG Ji-Liang. Paratype: 1 ♀, same data as holotype.

Etymology: The specific name is derived from the Latin “*lati*” and “*vertex*”.

Distribution: China (Hunan).

2 *Gibbotettix guizhouensis* sp. nov. (Fig. 2: A, B)

Diagnosis: This new species is allied to *G. lativertex* Zheng, but it differs in: width of longitudinal furrow of frontal ridge 1.5 times the

width of basal segment of antenna; upper margin of pronotum not cut by furrow before shoulders in profile; hind process reaching the top of hind femur; top of hind process with a deeply concave in the middle; upper and lower keels of hind femur complete; hind tibia ochrous, with two black rings in basal and middle part.

Descriptions: Male. Size small, body surface very coarsely, with tubercles. Vertex wide and short, width of vertex 3.25 times the width of one eye, midkeel not conspicuous, anterior margin straight, not protruding before eyes; lateral margin folded, beyond eyes; vertex and frontal ridge rounded together in profile; frontal ridge with angular convex between antennae, width of frontal ridge between antennae 1.5 times the width of first segment of antennae in front. Antennae filiform, 15-segmented, length of a segment in middle about 6 – 7 times longer than its width; inserted far below hind margin of eyes. Eyes globose, exserted; lateral ocelli placed in hind margin of inner side eyes. Anterior margin of pronotum straight, midkeel entire before shoulders, interrupted after shoulders; in profile, upper margin of pronotum convex before shoulders, but without deeply cuted by furrow, slightly undulated behind shoulders, convex distinctly near front; lateral keels of prozona parallel; humeral angle widely rounded; behind shoulders, each side of midkeel with 4 – 5 tubercles; hind process wide and short, slightly

reaching top of posterior femora, top of hind process with a deeply concave in the middle; lateral lobes of pronotum produced outwards, end of posterior angles truncate. Without tegmina and wing. Anterior and middle femur wider, upper and lower margin each with 2 lamellar convex; posterior femora stout, upper and lower midkeel entire, upper midkeel interrupted at one third of the end and forming a large teeth,

antegenicular denticles large, triangular; genicular denticles large, apex obtuse; inner side and outer side of posterior tibia each with 6 spines, length of first segment of posterior tarsi equal to the second and third segments together, first and second pulvilli of first segment little, apex sharp, third pulvillus large, apex obtuse. Subgenital plate truncate in profile.

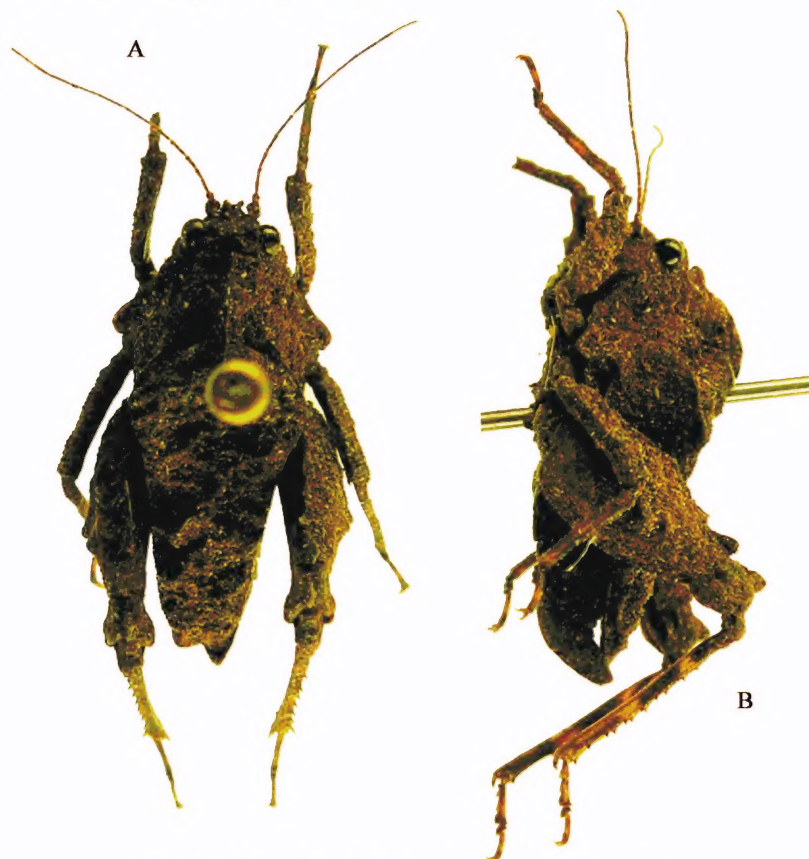


Fig. 2 Male adult of *Gibbotettix guizhouensis* sp. nov.
A: Body, dorsal view; B: Body, lateral view.

Body dark brown; posterior tibia brown, with black rings in the basal and middle part.

Female. Unknown.

Measurements: Length of body: ♂ 9.0 mm, length of pronotum: ♂ 8.5 mm, length of hind femur: ♂ 6.0 mm.

Type material: Holotype ♂, Guizhou: Daozhen, 107°6'E, 28°8'N, 25. V. 2004, collected by YU Yang.

Etymology: The specific name is derived from the type locality "Guizhou".

Distribution: China (Guizhou).

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中国驼背蚱属的分类研究及二新种记述 (直翅目: 枝背蚱科)

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摘要: 记述分布于中国的驼背蚱属 *Gibbotettix* 昆虫 9 种, 其中包括 2 新种, 即宽顶驼背蚱 *Gibbotettix lativertex* sp. nov. 及贵州驼背蚱 *Gibbotettix guizhouensis* sp. nov., 提供了驼背蚱属分种检索表及种类分布。宽顶驼背蚱近似于红河驼背蚱 *G. hongheensis* Zheng, 1992 及壶瓶山驼背蚱 *G. hupingshanensis* Fu et Zheng, 2003, 贵州驼背蚱近似于宽顶驼背蚱, 模式产地分别为湖南桑植和贵州道真。模式标本保存于陕西师范大学动物研究所昆虫标本室。根据新种特征, 对该属属征进行了修订。

关键词: 直翅目; 枝背蚱科; 驼背蚱属; 分类学; 新种

中图分类号: Q969 **文献标识码:** A **文章编号:** 0454-6296(2011)07-0843-05

附录: 新种中文简记

1 宽顶驼背蚱, 新种 *Gibbotettix lativertex* sp. nov. (图 1: A~C)

该新种近似于红河驼背蚱 *G. hongheensis* Zheng, 1992 及壶瓶山驼背蚱 *G. hupingshanensis* Fu et Zheng, 2003, 但区别于二者: 头顶宽为一眼宽的 3.4 倍; 侧观头顶与颜面隆起呈钝圆形; 后突超过后足股节; 侧观背板上缘在肩部前被深沟切断。区别于前者为: 复眼着生于复眼下缘之下甚远; 前胸背板中隆线断裂。区别于后者为: 后突顶中央具浅凹; 第一跗节之下第 3 垫大于第 1, 2 垫。

正模♀, 湖南: 桑植(八丈公山), 2004-VIII-10, 王继良采, 副模 1♀, 同正模。

词源: 新种名以拉丁词“*lati*-(宽的)”和“*vertex*-(头顶)”为名。

2 贵州驼背蚱, 新种 *Gibbotettix guizhouensis* sp. nov. (图 2: A, B)

该新种近似于宽顶驼背蚱 *Gibbotettix lativertex* sp. nov., 与其主要区别: 触角间颜面隆起纵沟宽为触角基节宽的 1.5 倍; 侧面观, 前胸背板上缘在肩部前不具沟; 后突到达后足股节顶端, 后突顶端深凹; 后足股节上下侧中隆线完整; 后足胫节褐色, 具 2 个黑色环。

正模♂, 贵州: 道真(玉河坝), 2004-V-25, 于洋采。

词源: 种名以模式产地“Guizhou-(贵州)”为名。

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